Tool information

01/2010

Adjustable die VLM

Contents

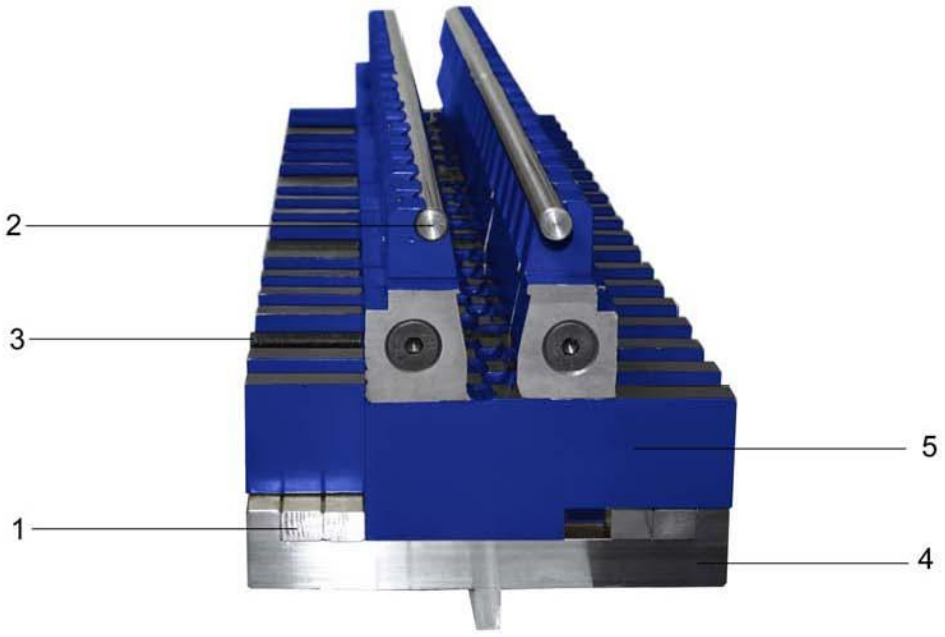
1. Description

1.1 General

The VLM die helps in convenient bending of various sheet thicknesses in one set-up in the thick sheet area. The die widths can be adjusted as per the request of a customer quickly and easily using setting bars.

The following models are available:

- VLMBN: 3 - 15 mm sheet thickness (max. 1250 kN/m)
- VLMDN: 5 - 20 mm sheet thickness (max. 2000 kN/m)
- VLMEN: 10 - 40 mm sheet thickness (max. 4000 kN/m)



1	Spacer strip	4	EV holder (holder bracket)
2	Track roller (bending axis)	5	Two die halves
3	Securing screw		

1.2 Technical data

		VLMBN	VLMDN	VLMEN
Die width		W24-W124 with roller R8, with standard slats adjustable in 5 mm steps	W62-W182 with roller R12.5, with standard slats adjustable in 5 mm steps	W120-W300 with roller R20, with standard slats adjustable in 10 mm steps
Thickness of the material	[mm]	3 to 15	5 to 20	10 to40
Working angle	[°]	From 30 to 180	From 60 to 180	From 60 to 180
Die length	[mm]	250, 500, and 1000	250, 500, and 1000	600
Utilization limitations	[kN/m]	max. 1250	max. 2000	max. 4000
Possible machine types				

Table 1

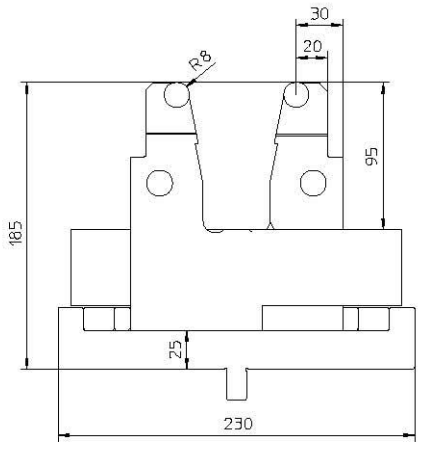
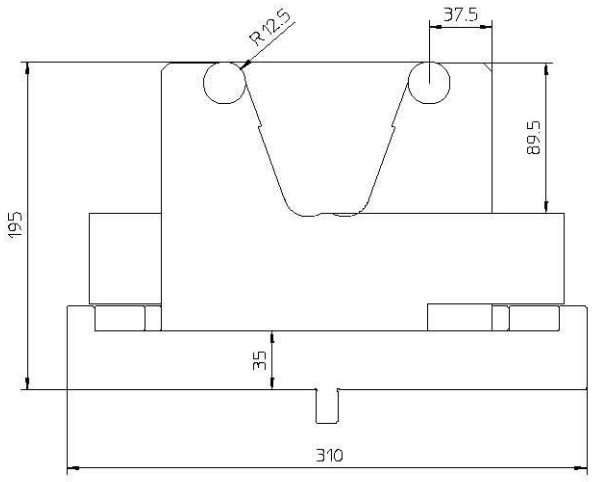
VLMBN	VLMDN
	

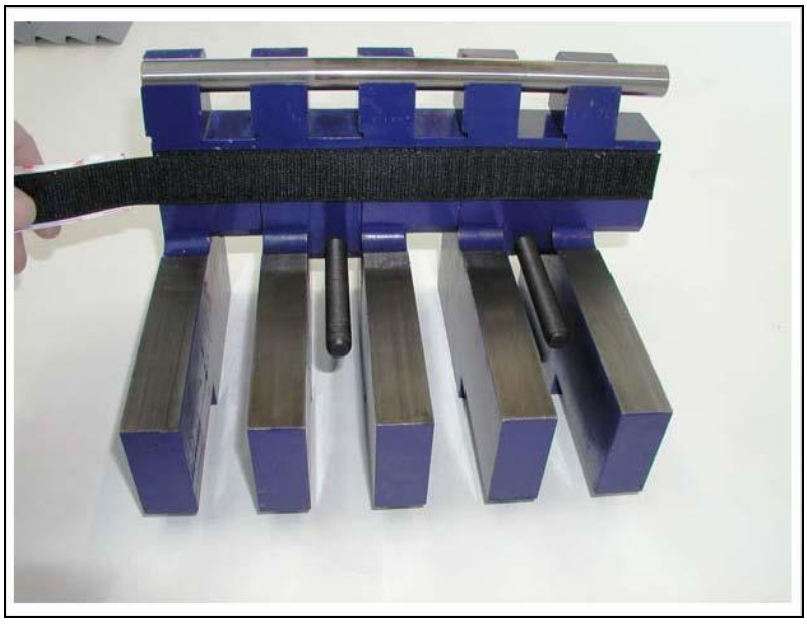
Table 2

1.3 Protective foil

Information
The use of protective foil is required especially with oxidized (hot rolled) sheets. The die is thus protected from contamination and consequential damage is avoided.

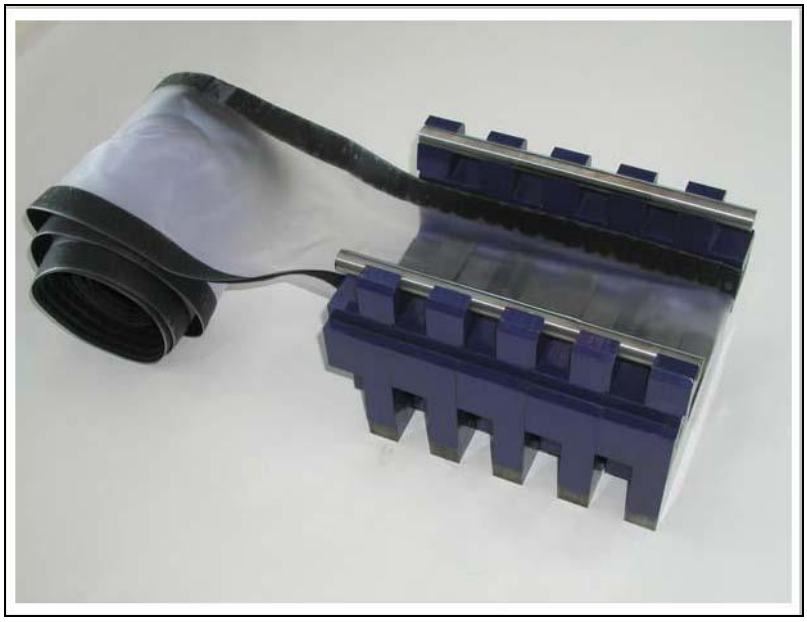
Attach protective foil

1. Attach the Velcro® strip to the two halves of the die.



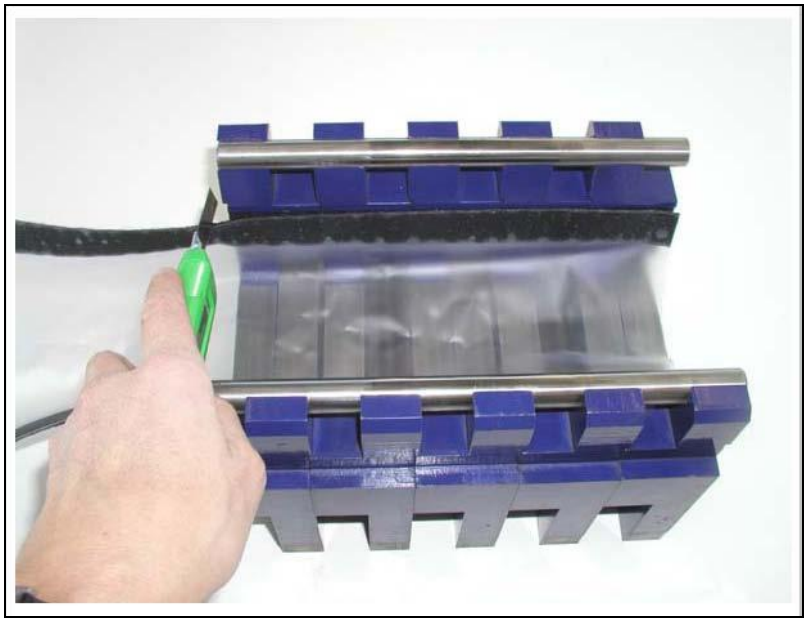
2. Trim the Velcro® strip so it is flush with the edge of the die.

3. Affix the flexible foil.



4. Trim the flexible foil.

Tip
When using more than one part piece (e.g. 4 x 500 mm), we recommend trimming the foil as one piece (2000 mm in length). Alternatively, the foil can be trimmed to overlap each part piece, i.e. for a part piece 500 mm in length, the foil should be 550 mm long. This leaves no space for dirt to accumulate in.



	VLMBN **Protective foil set 1**	**VLMDN** **Protective foil set 2**	**VLMEN** **Protective foil set 3**
Protective foil (width)	150 mm	190 mm	290 mm
Die width	V24-V124	V62-V182	V120-V300
Scope of delivery	10 m Velcro® strip; 5m protective foil	10 m Velcro® strip; 5m protective foil	10 m Velcro® strip; 5m protective foil

Table 3

2. Operation

2.1 Preparation

1. After the packaging has been removed, the die halves must be attached to the holder bracket, which has first been installed on the press brake.
2. Make sure the two die halves are attached one after the other and that the securing screws (included loose in the delivery) are located on the front side of the press brake (two per unit).
3. Afterward, the desired units are installed and pushed against each other. The track rollers (bending axes) must remain separated on each unit and may not extend into the next unit, in order not to hurt the adjustability.
4. To set the desired V-opening, the securing screw are loosened enough that the spacer strips on both sides can be simply pushed in.

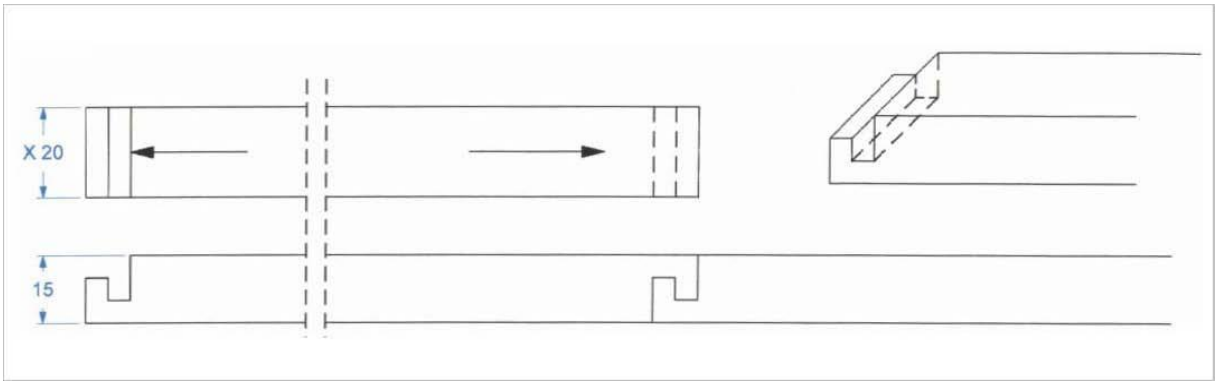
   Tip

   If several spacer strips are to be attached next to each other, it is recommended to attach the widest strip to the die side and the narrowest to the outside; this arrangement makes pushing the strips easier.

5. After the spacer strip have been attached, the securing screws must be fastened by hand in order to fix V-opening and prevent the sheet to bent from possibly impacting against the die.
6. Depending on the V-opening, a suitable protective foil made of plastic is attached (protective foil option).
7. In order for the surface of the track rollers to run in the fins, when the dies are started up, a material which needs the maximum permissible press force should preferably be bent. In this way, the surface of the track rollers can run better in the fins, so that turning with very low press force is made easier.

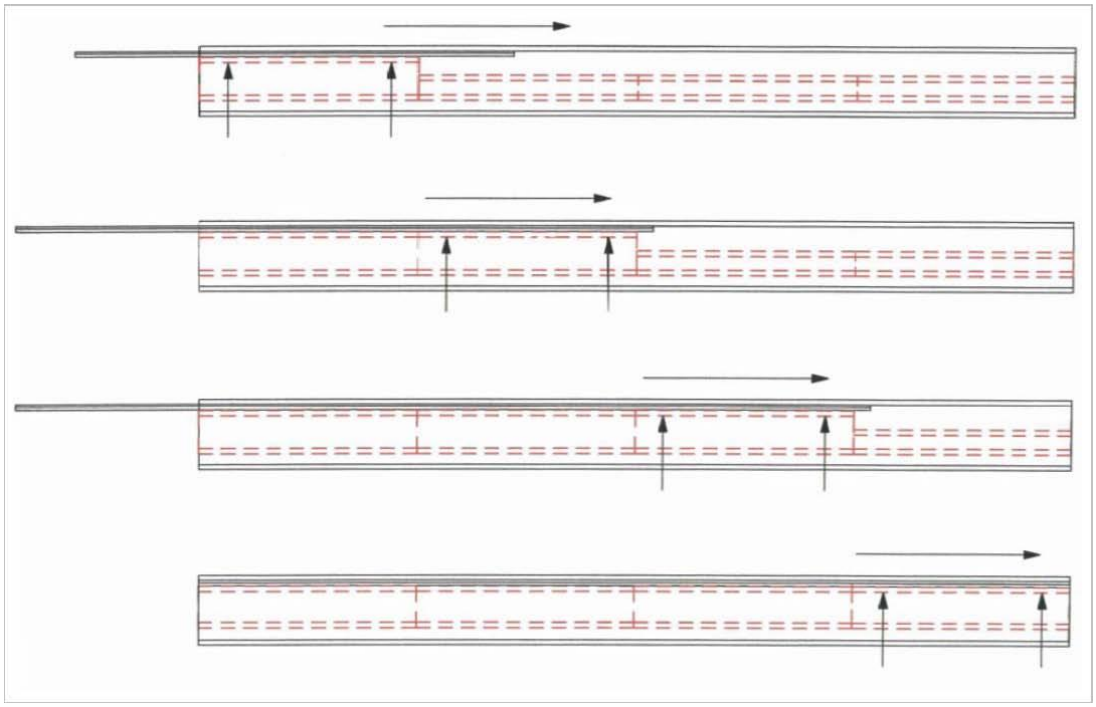
2.2 Spacer strip with groove

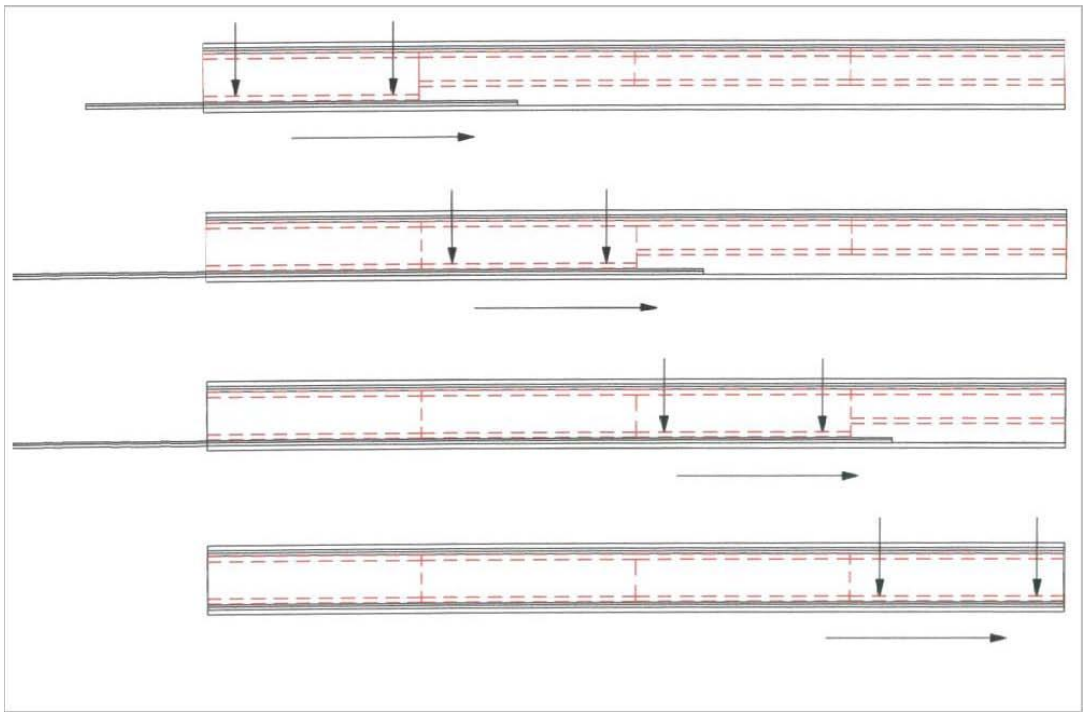
The spacer strip with a groove on both ends makes it possible to connect several spacer strips. The advantage to this is that when several VLM dies are used next to each other, the spacer strips can be pulled out again from both sides.



Using several VLM dies at the same time

In the two following figures, the construction of several VLM dies next to each other and the correct pushing of the spacer strips is shown.

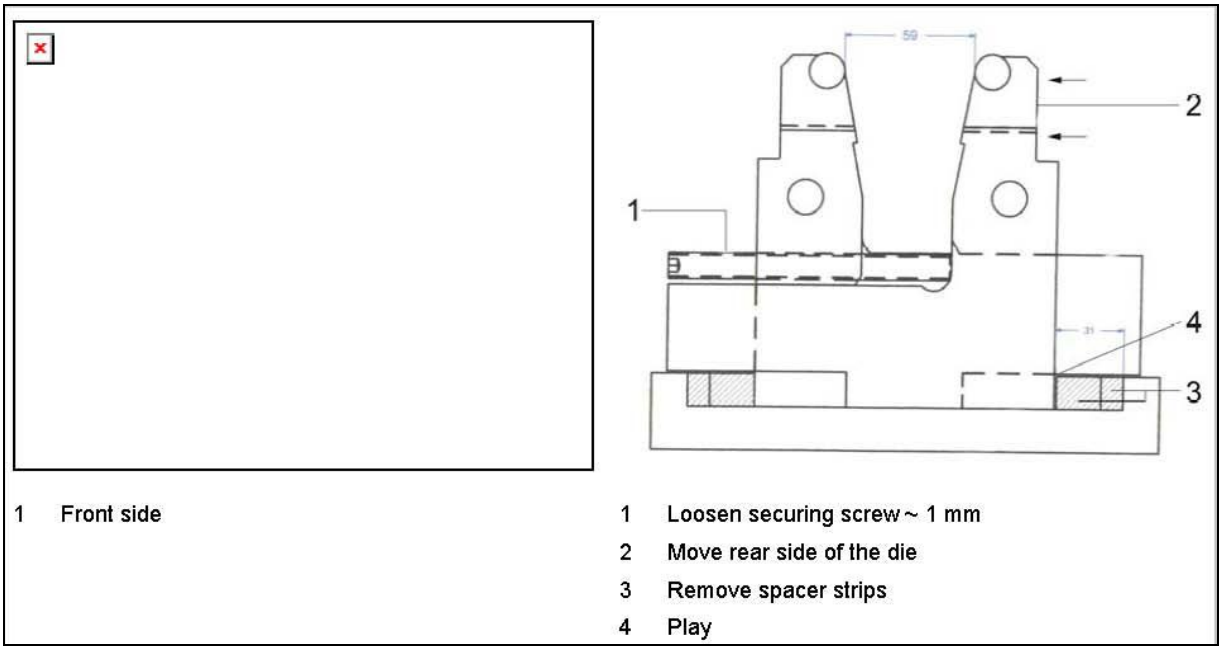




2.3 An example of adjusting the VLM die

As an example, a single-side changeover of the V-opening from 60 mm to 40 mm (VLMBN) is shown. A changeover with VLMDN dies works according to the same principle.

1. First, the securing screws must be loosened (approx. 1 mm). Then, the rear die halves are pushed forward so that the spacer strips are freely accessible. The spacer strips can then be removed.

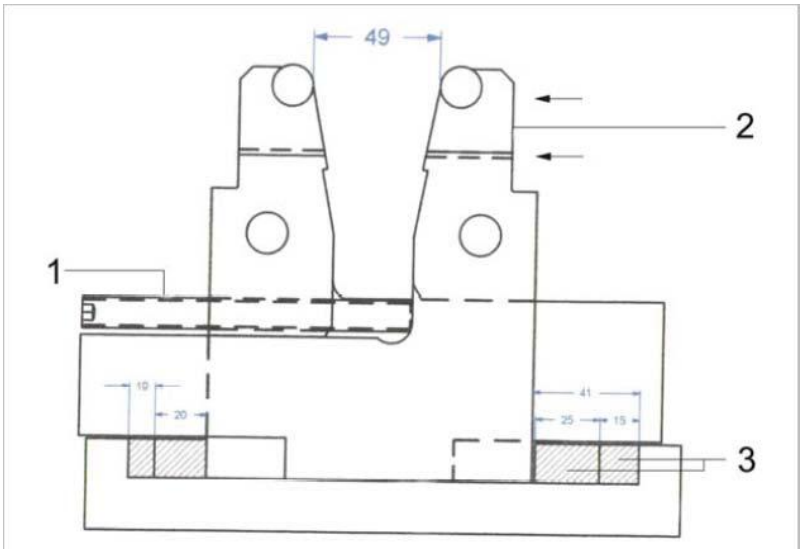


1 Front side

1 Loosen securing screw ~ 1 mm
2 Move rear side of the die
3 Remove spacer strips
4 Play

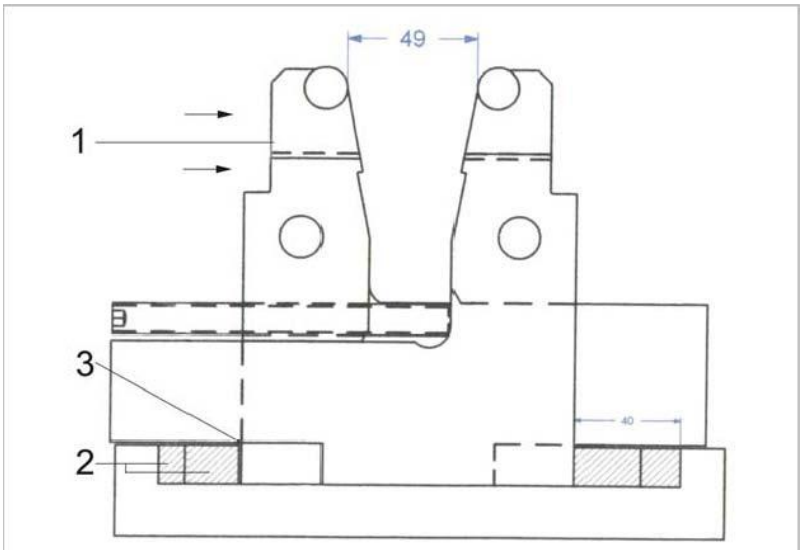
2. The securing screws are then loosened until the desired spacer strip width on the rear side of the die is achieved (in this example approx. 10 mm). The rear die halves are then pushed against the securing screws so that there is a space of approx. 41 mm. Now the new spacer strips can be pushed in.

3.



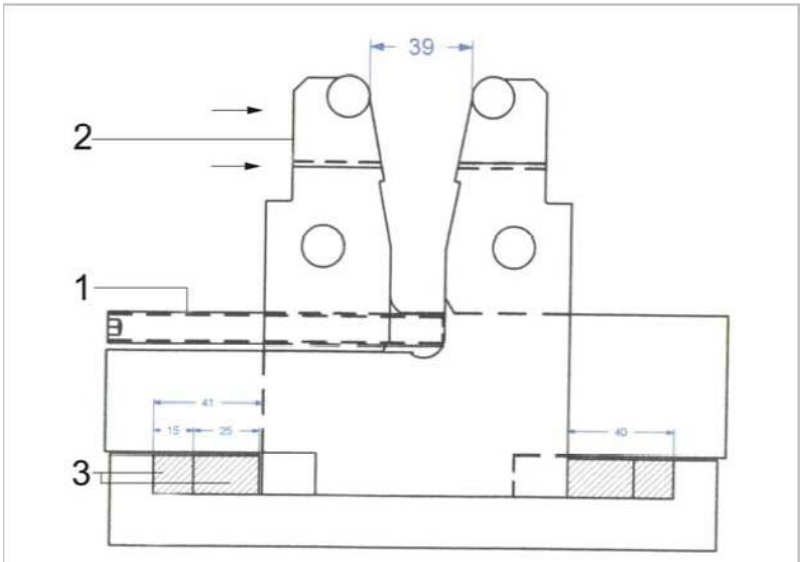
1 Loosen securing screw ~ 10 mm
2 Move rear side of the die
3 Insert spacer strips

4. Then the front die half is pushed backward and the front spacer strips can be removed



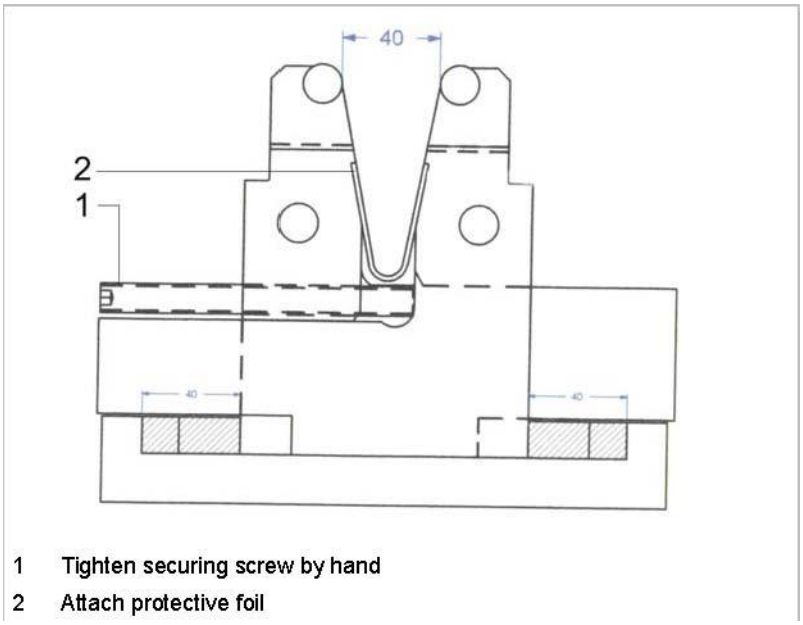
1 Move die
2 Remove spacer strips
3 Play

5. Then the securing screws are loosened again by approx. 10 mm. Then the front die halves must be pushed backward. Now the new spacer strips can be pushed in.



1 Loosen securing screw ~ 10 mm
2 Move die
3 Insert new spacer strips

6. Now the securing screws are fastened by hand and the suitable protective foil attached. The die is now available.



1 Tighten securing screw by hand
2 Attach protective foil

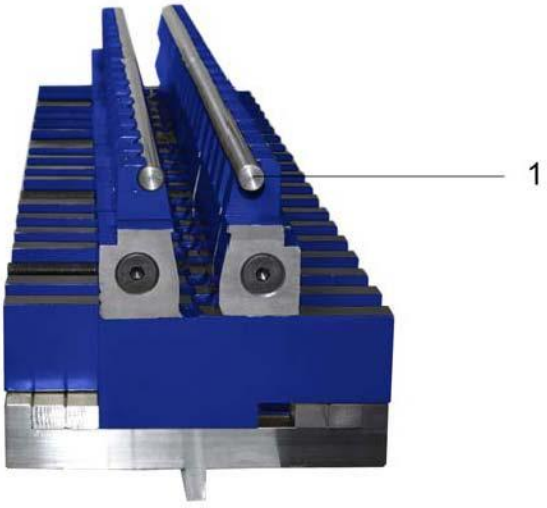
Note
When changing from a larger spacer strip opening to a smaller one, the die halves must always be pushed on the spacer strips at each pushed-in length, so that they cannot become detached from each other.

3. Maintenance

3.1 Lubricating the track rollers

Note
When the VLM die is to be used on a permanent basis, make sure it is lubricated regularly, so that the bearing is not damaged prematurely.

- Clean the track rollers with a lightly oiled cloth.



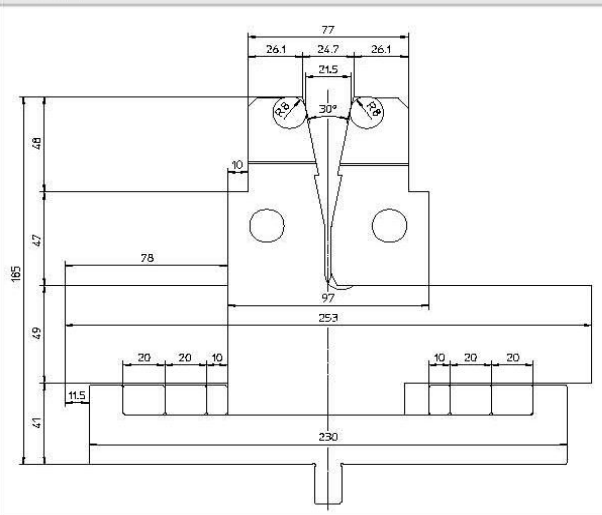
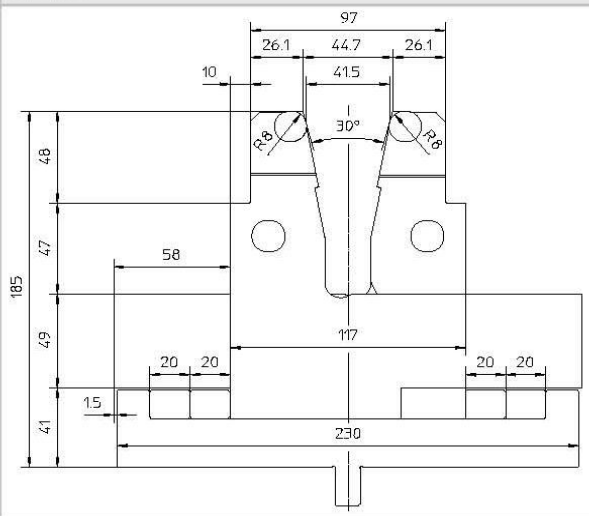
1 Track roller

4. Programming

4.1

Note
The VLM tools are not entered into the database.

4.2 DELEM controller

W 21.5	W 41.5
	
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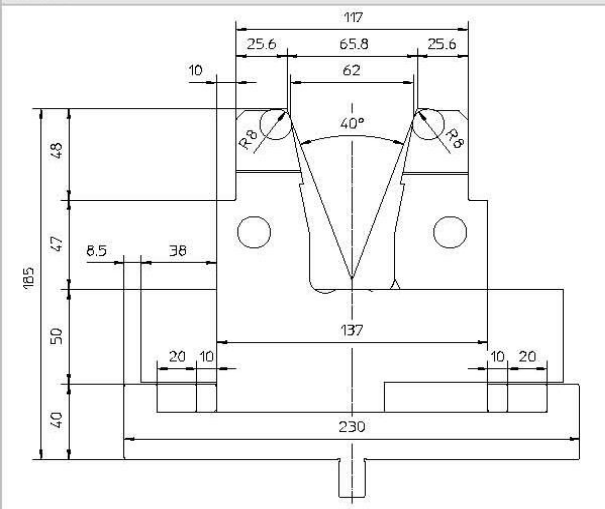
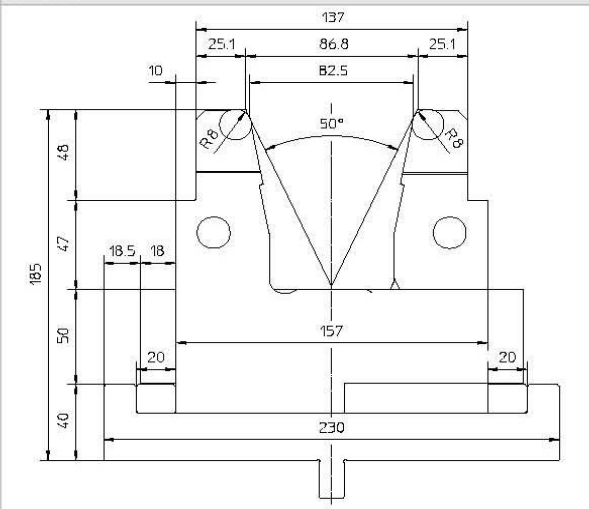
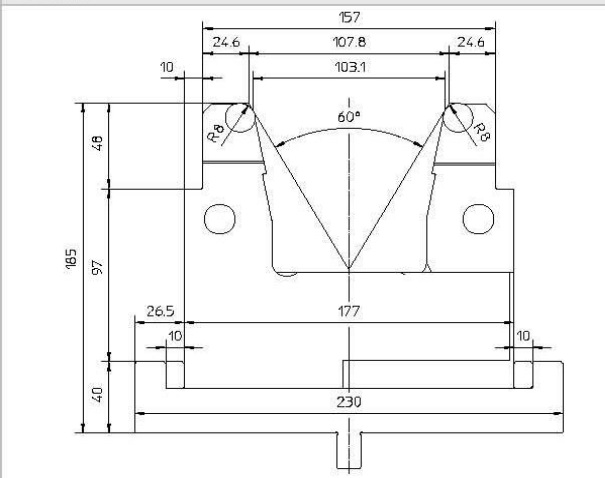
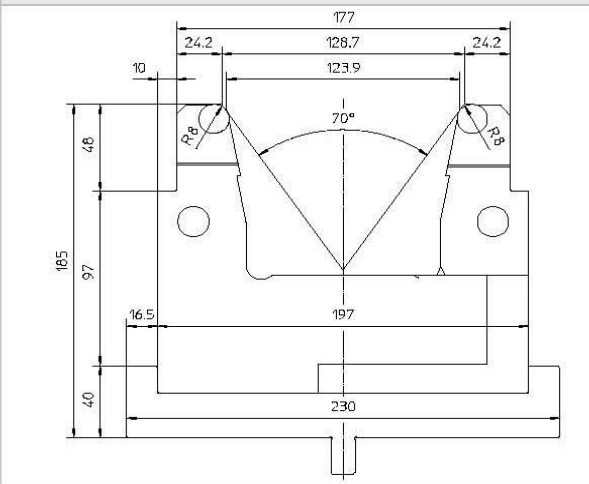
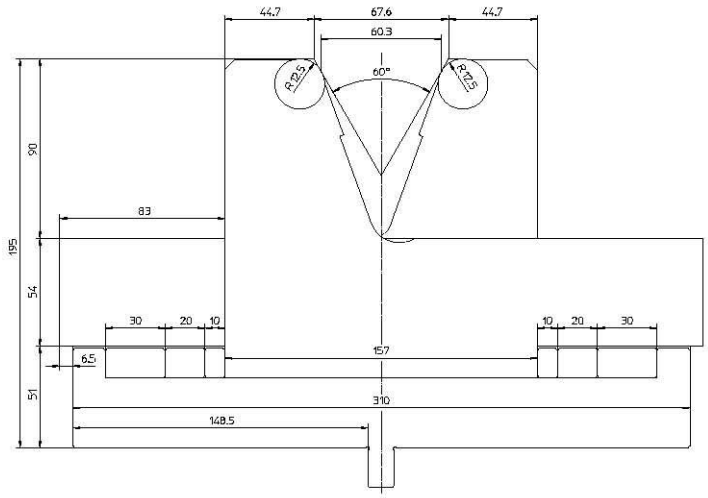
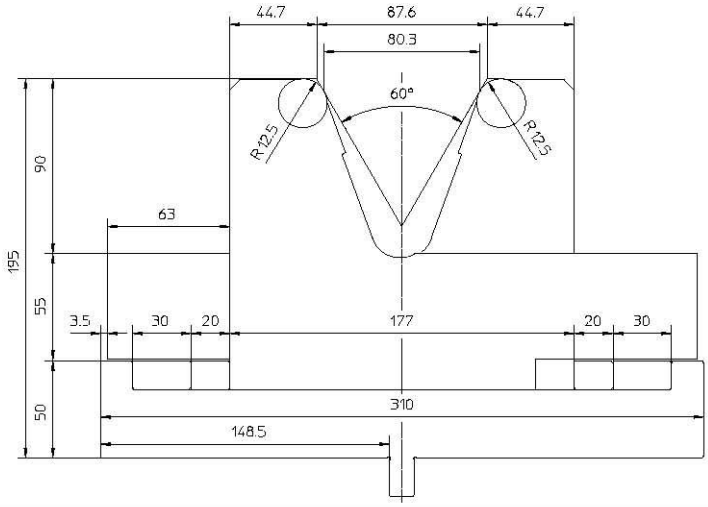
	
W 103.1	**W 123.9**
	

Table 4

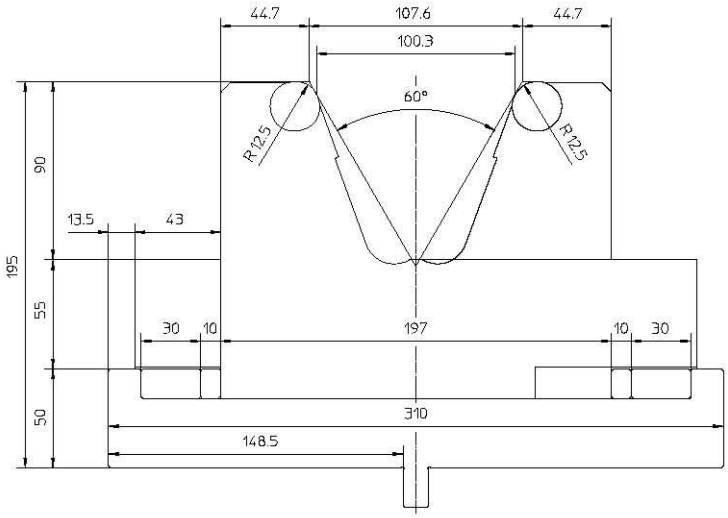
W 60.3



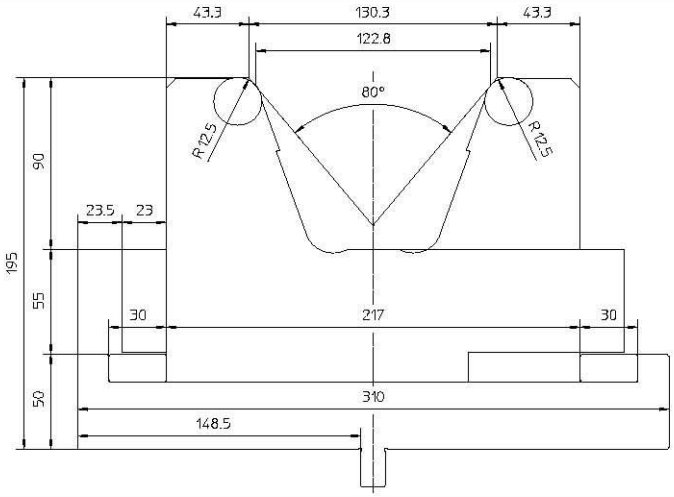
W 80.3



W 100.3



W 122.5



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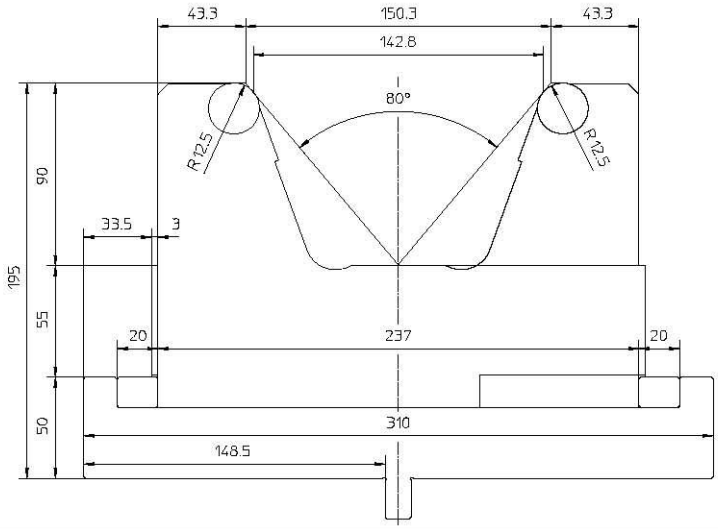

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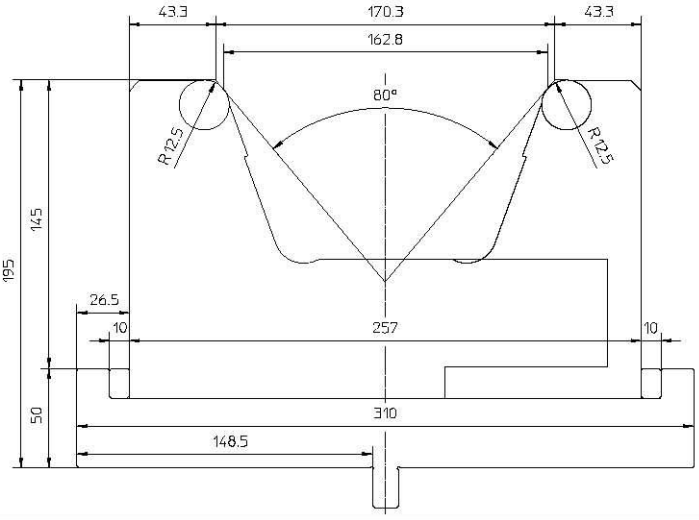

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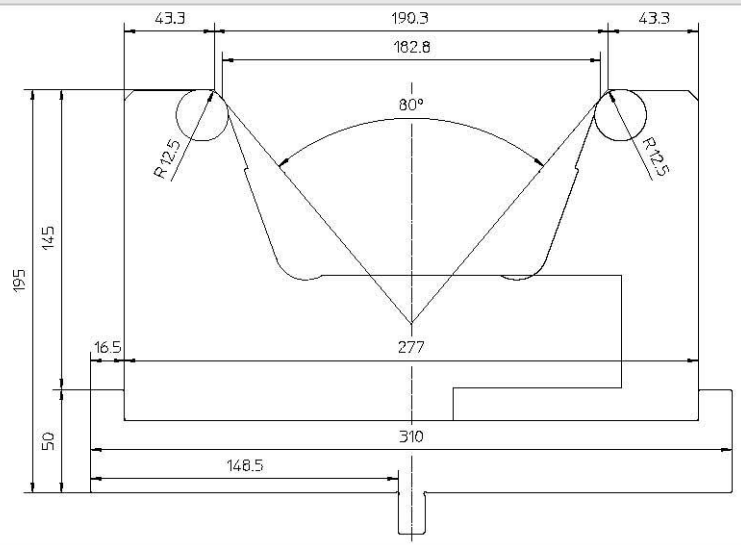

Table 7